Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) An elongated intravascular device adapted to be advanced through a vessel of a subject, the device comprising:

an elongated electrical conductor;

a first electrically conductive layer disposed coaxially to the elongated electrical conductor;

at least one dielectric layer disposed between the elongated electrical conductor and the first electrically conductive layer; and

an electrically conductive coil, a first end of the coil being electrically coupled to the elongated electrical conductor and a second end of the coil being electrically coupled to the first electrically conductive layer, wherein a circuit comprising the elongated electrical conductor, the electrically conductive layer, the dielectric layer and the coil forms an impedance-matching circuit.

2. (Previously presented) An elongated intravascular device adapted to be advanced through a vessel of a subject, the device comprising:

an elongated electrical conductor;

a first electrically conductive layer disposed coaxially to the elongated electrical conductor;

at least one dielectric layer disposed between the elongated electrical conductor and the first electrically conductive layer;

an electrically conductive coil, a first end of the coil being electrically coupled to the elongated electrical conductor and a second end of the coil being electrically coupled to the first electrically conductive layer, wherein a

circuit comprising the elongated electrical conductor, the electrically conductive layer, the dielectric layer and the coil forms an impedance-matching circuit; and

an electrically conductive shield layer disposed coaxially to the elongated electrical conductor, wherein the at least one dielectric layer disposed between the elongated electrical conductor and the coaxial electrically conductive layer comprises a first dielectric layer disposed between the elongated electrical conductor and the shield layer and a second dielectric layer disposed between the shield layer and the first electrically conductive layer.

3. (Original) The intravascular device of claim 2 further comprising:

a second electrically conductive layer disposed coaxially to the first electrically conductive layer, the second conductive layer being electrically coupled to the elongated electrical conductor and to the first end of the coil; and

a third dielectric layer disposed between the first electrically conductive layer and the second electrically conductive layer.

4. (Original) The intravascular device of claim 3 wherein the first dielectric layer is disposed on top of the elongated electrical conductor, the shield layer is disposed on top of the first dielectric layer, the second dielectric layer is disposed on top of the shield layer, the first electrically conductive layer is disposed on top of the second dielectric layer, the third dielectric layer is disposed on top of the first electrically conductive layer, and the second electrically conductive layer is disposed on top of the third dielectric layer.

5. (Original) The intravascular device of claim 2 wherein the coil is wound around a first longitudinal portion of the elongated conductor, the first dielectric layer is disposed

on top of a second longitudinal portion of the elongated electrical conductor, the shield layer is disposed on top of the first dielectric layer, the second dielectric layer is disposed on top of the shield layer and the first electrically conductive layer is disposed on top of the second dielectric layer, wherein a third dielectric layer is disposed coaxially on top of a third longitudinal portion of the elongated electrical conductor, the first longitudinal portion of the electrical conductor being longitudinally disposed between the second and third longitudinal portions, and wherein a second electrically conductive shield layer is coaxially disposed on top of the third dielectric layer and electrically coupled to the first electrically conductive layer and to the second end of the coil.

6. (Original) The intravascular device of claim 1 wherein the electrically conductive coil is an antenna adapted to receive an electromagnetic signal and to transmit the signal to the elongated electrical conductor.

7. (Original) The intravascular device of claim 1 wherein the intravascular device is a catheter and wherein the elongated electrical conductor, the first electrically conductive layer, the at least one dielectric layer and the coil are disposed within the catheter shaft.

8. (Original) The intravascular device of claim 7 and further comprising:
a guidewire, the catheter being axially movable relative to the guidewire.

9. (Original) The intravascular device of claim 1 wherein the intravascular device comprises a guidewire and wherein the elongated electrical conductor, the first electrically conductive layer, and the at least one dielectric layer are disposed on the guidewire.

10. (Previously presented) An intravascular device comprising:

a cylindrical inner wall defining a lumen and formed of an expandable electrically conductive material; and

a cylindrical outer wall formed of an electrically conductive material, the inner and outer walls separated by a compressible dielectric material, wherein varying the pressure in the lumen changes the spacing between the inner and outer walls, thereby changing the capacitance between the inner and outer wall; and

an electrically conductive coil, a first end of the coil being electrically coupled to a distal end of the inner wall and a second end of the coil being electrically coupled to a distal end of the outer wall, wherein a proximal end of the inner wall and a proximal end of the outer wall are electrically coupled to respective transmission lines, whereby a circuit comprising the coil, the inner wall, the outer wall and the respective transmission lines can be tuned by varying the pressure within the lumen, thereby changing the capacitance between the inner and outer walls.

11. (Original) The intravascular device of claim 10 wherein the compressible dielectric material is air.

12. (Original) The intravascular device of claim 10 wherein the compressible dielectric material is an air-filled porous material.

13. (Previously presented) The intravascular device of claim 10, wherein the compressible dielectric material comprises EPTFE material.

14. (Original) The intravascular device of claim 10 wherein the inner and outer walls are comprised of an elastic material coated with an electrically conductive material.

15. Cancelled.

16. (Original) The intravascular device of claim 10 wherein the intravascular device comprises a catheter.

17. (Original) The intravascular device of claim 10 wherein the intravascular device comprises a balloon.

18. (Original) The intravascular device of claim 10 wherein the outer wall is formed of an expandable material.

19. (Original) The intravascular device of claim 10 wherein the outer wall is formed of a substantially rigid material.

20. (Original) The intravascular device of claim 10 wherein the intravascular device comprises a guidewire.

21. (Original) The intravascular device of claim 16 and further comprising a guidewire, the catheter axially movable relative to the guidewire.

22. (Original) An elongated intravascular device comprising:
an elongated electrical conductor;
a first dielectric layer disposed on top of the elongated electrical conductor;
an electrically conductive primary shield layer disposed on top of the first dielectric layer;
a second dielectric layer disposed on top of the primary shield layer;
a secondary shield layer comprised of an electrically conductive polymer disposed on top of the second dielectric layer;

a first electrical short coupling the primary shield layer to the secondary shield layer at a first longitudinal position along the elongated electrical conductor;

a second electrical short coupling the primary shield layer to the secondary shield layer at a second longitudinal position, distal of the first longitudinal position, along the elongated electrical conductor; and

a non-electrically-conductive gap in the secondary shield layer at a longitudinal position just proximal of the second electrical short.

23. (Original) The intravascular device of claim 22 wherein the second dielectric layer includes a longitudinal section, distal of the second electrical short, that serves as a waveguide, and wherein the waveguide translates the second electrical short into a high impedance at a third longitudinal position distal of the second electrical short.

24. (Original) The intravascular device of claim 22 wherein a distal end of the elongated electrical conductor is electrically coupled to a distal end of the primary shield layer to form an antenna adapted to receive an electromagnetic signal and to transmit the signal to a controller coupled to a proximal end of the elongated electrical conductor and a proximal end of the primary shield.

25. (Original) The intravascular device of claim 24 wherein the elongated intravascular device is adapted to serve as a guidewire adapted to assist in the delivery of a second intravascular device to an intravascular location.

26. (Original) The intravascular device of claim 22 further comprising:

an electrically conductive coil having a first end electrically coupled to a distal end of the elongated electrical conductor and a second end electrically coupled to a distal end of the primary shield layer to form an antenna

adapted to receive an electromagnetic signal and to transmit the signal to a controller coupled to a proximal end of the elongated electrical conductor and a proximal end of the primary shield.

27. (Original) An elongated intravascular device comprising:
an elongated electrical conductor;
a dielectric layer disposed on top of the elongated electrical conductor;
a shield layer comprised of an electrically conductive polymer disposed on top of the dielectric layer;
a first electrical short coupling the elongated electrical conductor to the shield layer at a first longitudinal position along the elongated electrical conductor;
a second electrical short coupling the elongated electrical conductor to the shield layer at a second longitudinal position, distal of the first longitudinal position, along the elongated electrical conductor; and
a non-electrically-conductive gap in the shield layer at a longitudinal position just proximal of the second electrical short.

28. (Original) The intravascular device of claim 27 wherein the dielectric layer includes a longitudinal section, distal of the second electrical short, that serves as a waveguide, and wherein the waveguide translates the second electrical short into a high impedance at a third longitudinal position distal of the second electrical short.

29. (Original) The intravascular device of claim 27 wherein the elongated intravascular device is a guidewire adapted to assist in the delivery of a second intravascular device to an intravascular location.

30. (Original) An intravascular device, comprising:

an elongate catheter having an elongate shaft with a proximal end and a distal end;

an antenna formed of conductive material electroplated on a distal region of the elongate shaft; and

a first elongate conductor and a second elongate conductor, the first and second elongate conductors extending from a proximal region of the elongate member to a distal region thereof and at least one of the first and second elongate conductors being electrically connected to the antenna.

31. (Original) The intravascular device of claim 30 wherein the antenna comprises:

a plurality of portions of conductive material electroplated on a distal region of the elongate shaft and in spaced relation to one another about the elongate shaft.

32. (Original) The intravascular device of claim 31 wherein each of the portions of conductive material are electrically connected to one of the first and second elongate conductors.

Claims 33-38. Cancelled.